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INTERNET ACCESSIBLE DATABASES

The Chemical Safety and Data Division of the U.S. Army Technical Center for Explosives Safety (USATCES) is responsible for maintaining two internet accessible products that are very useful to the ammunition community: the Joint Hazard Classification System (JHCS) <http://www.dac.army.mil/es/est/hc.asp> and the Explosives Safety Mishap Analysis Module (ESMAM) <http://www.dac.army.mil/esmam/>. Both require a user id and authentication for access.

The JHCS is the official Department of Defense (DOD) hazard classification database of ammunition and explosives. The web site has a JHCS file available for download that is updated daily. This is the complete JHCS as an ASCII text file. It replaces the JHCS quarterly CD. Customers using the JHCS text file should download the JHCS frequently enough to be assured of having current JHCS data to ship and store their ammunition.


The ESMAM keeps track of explosives mishap data provided by the Army, Navy, Air Force, Marine Corps, and Defense Contract Management Command. It provides the Department of Defense Explosives Safety Board (DDESB), service headquarters personnel, and DOD users in the field with data to identify and assess hazards inherent in explosives

operations. This data can be used as a risk management tool to identify operational risks and take reasonable measures to reduce or eliminate hazards.

A recently completed enhancement of the ESMAM, the Statistical Analysis Module, provides a simple way for users to look at explosives mishap data graphically by year or in 5- or 10-year increments. Data can be looked at using a broad range of optional sort criteria: service, command, country, type munition, operation, and cause of mishap to name a few. We strongly invite customer input on this capability so it can be further enhanced to meet specific needs in the field.

The web page to request a login and authentication to access both the JHCS and ESMAM databases is <http://www.dac.army.mil/es/esm/ESIDBForm.asp>. All military and civilian personnel working for the DOD with a valid need for this type of data can request access. Any questions or problems with this process can be sent via e-mail to esidb/jhcs@dac-emh2.army.mil.

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CAMP SHELBY'S UXO INCIDENT: A TRAGIC REMINDER

The following article contains excerpts from the WLOX-TV web site: www.wlox.com.

On 25 May 2000, two teenage boys were seriously injured when an unexploded (UXO) round removed from a Camp Shelby training range detonated in the driveway of a Wiggins, MS, home. One boy who had lost both arms and part of a foot, died on Saturday the 27th. The other boy incurred severe shrapnel injuries and remains hospitalized.

Stories such as this are tragic reminders to the hazards associated with current and active military ranges and consequences of disturbing found UXO. Many trespassers presume UXO is safe to handle or worse, they didn't know what they had found. At Camp Shelby, the boys said they found the anti-tank (AT) rounds about two months ago when their car got stuck in the mud. They used the rounds to wedge under the tires to free the car. They later decided to take the rounds home as souvenirs. As sad as this tragedy is, Wiggins Police Chief, Steve Compston, says it could have been worse. Reportedly, last week, about 20 young people were playing with the shells at a popular swimming hole west of town.

During a press conference, Camp Shelby officials said they've done everything possible to prevent a tragedy. "We posted warning, restricted area signs and have security personnel patrolling the areas".

Of the institutional controls available to us, public awareness presents the biggest challenge. Two major points to emphasize are:

a. School education programs: Classes or assemblies may be given to educate school-age children about the consequences if ordnance is found and handled. For future use, a video tape or computer based presentation is being developed as a coordinated effort between Director of Army Safety (DASF) and the U.S. Army Technical Center for Explosives Safety (USATCES).

b. Ad campaigns: Public service announcements should be periodically placed in newspapers or on television. Flyers could be put on bulletin boards showing ammunition items that may be found in the area and describing actions to take if they are found.

As the Camp Shelby tragedy unfolded, a Perry County mother said "You've got areas where you're allowed to go and where you're not allowed to go, but nowhere is there a sign around telling you don't pick up anything." This last comment, **don't pick up anything**, is an elementary explosives safety principle that must be emphasized to the general public.

As safety conscious professionals, we should be continually vigilant of the potential hazards associated with UXO. Assist installation commanders to inform/educate the public to help discourage potential trespassers.

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**VISIT OUR
WEBSITE AT:**

www.dac.army.mil/es/

THE DEFENSE AMMUNITION CENTER'S (DAC'S) ROBOTIC PROJECTS

DAC's Technology Office and Sandia National Laboratories are developing a flexible workcell to disassemble conventional munitions. Technology development for this program is funded by the Joint Demilitarization Technology Program (JDTP), which looks at overall workcell integration and by the Department of Defense/Department of Energy (DOD/DOE) memorandum of understanding (MOU) that focuses on the dexterous manipulation and vision control systems applicable in both realms.

The overall concern of the Flexible Workcell Pilot Plant will contain six independent divided workcells with robots and stationary apparatuses working together in an environment devoid of humans within the processing areas. The workcell will have at least two humans outside the protective walls feeding the processing line with two more at a remote site monitoring each workcell's performance. Flexibility will not only apply within each independent workcell, but also having a capability to use a combination of workcells that can be turned on or off dependent on the munition items being processed.

Two projects currently underway with this flexible workcell concept are: disassembly of conventional fixed round munitions ranging from 20mm to 120mm and the downloading of the M42 and M46 grenades from the M483A1 ICM 155mm projectile. Both prototypes have been demonstrated on inert ammunition. For the fixed rounds, an inert 40mm Navy Anti-Aircraft Artillery (AAA) round was completely disassembled using robotics with conventional abrasive waterjet technology. For the demonstration on grenade removal, an inert M483A1 155mm projectile was the targeted munition. These aforementioned robotic projects are part of an overall Resource, Recovery, and Reuse (R3) Program the DOD is pursuing with excess/obsolete conventional munitions.

Among various issues being addressed with the flexible workcell is:

- a. Safety (robotic/explosive).
- b. Removing humans from precarious situations (exposed energetic/toxicity of materials).

Explosive safety, working in a Class II, Division 1, Groups E, F, and G environment, is a concern when operating electrically driven robots. The challenge is to

ensure the robot; end-of-arm tooling and workcell hardware pose no further hazard to a possible dust atmosphere filled with propellant/explosives. This program has been working with a commercial robot vendor, DAC's U.S. Army Technical Center for Explosives Safety (USATCES), and McAlester AAP's Safety Risk Management Office for real world experience in explosive safety matters. The prognosis looks good for Factory of Mutual (FM) approval on the robot that will encompass pressurizing and monitoring motor/encoder housings, utilizing non-arcing, non-sparking limit switches and appropriate cabling, incorporating an intrinsically safety battery pack, etc. Additionally, a non-electrostatic boot that does not inhibit system operation may also be used. Robotic safety will consist of light fences, pressure mats, other forms of dividers and emergency stop buttons in carefully selected locations within and outside the workcells. Each workcell will be independent from the other to allow intrusion into that particular workcell or, if a complete system shutdown is necessary, the capability will be there.


The second issue this project will be addressing is removing humans from precarious situations; i.e., exposed explosives and toxic environments. Human safety is the objective to any type of hazardous situation. We would like to zero out these risks as much as possible with the flexible workcell.

We at DAC's Technology Directorate and Sandia National Laboratories are optimistic that automation in the pursuit of human safety and health, plus the R3 efforts, will bring a potential paradigm shift to the world of demilitarization technology.

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DO YOU HAVE IDEAS FOR ARTICLES INVOLVING EXPLOSIVES SAFETY?

Good ideas for explosives safety are everywhere! If there is a topic you would like to see researched or published in a future explosives safety bulletin, e-mail us at: cummings@dac-emh2.army.mil or durand@dac-emh2.army.mil.



FIRE AND CHEMICAL HAZARD SYMBOLS

We recently learned that the fire (1,2,3,4) and chemical hazard (red man, yellow man, etc.) symbols are no longer available through GSA. The only government source is the Defense Logistics Agency (DLA). They are also available from various commercial sources. To procure them through DLA, they must be requisitioned using a MILSTRIP document, i.e., DD1348-1. The routing identifier (RIC) for these items is S9I.

We will be including this information in a future change to DA Pam 385-64.

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MATERIAL SAFETY DATA SHEET (MSDS)

MSDSOnline bills itself as the leading internet MSDS search engine and electronic MSDS management software solution. The search engine is available at no charge to registered users. Go to www.msdsonline.com and click on New User. Some nice features to the site are listings of the 10 most requested MSDSs and the top 10 companies for whose products MSDSs are sought. Additionally, there are links to safety magazines (Compliance, Industrial Hygiene News, et al), to other safety sites and to the Code of Federal Regulations (CFR). Another feature is the DOD MSDS library, a collection of MSDSs hand-typed by DOD employees over the last several years. The DOD MSDS library is a separate search in the MSDSPlus content area. Whether for a common household item or a hazardous chemical product, the MSDS lists product and company identification, hazards identification, first aid measures, handling and storing information, regulatory information, etc.

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